

Abstract of the Disclosure

METHOD FOR MEASURING CHARACTERISTICS, PARTICULARLY THE TEMPERATURE OF A MULTI-LAYER MATERIAL WHILE THE LAYERS ARE BEING BUILT UP

The invention relates to a method for measuring characteristics, especially the temperature of a multi-layer material during the build-up of the layers, especially of a stratified semiconductor system during epitaxy under constant process conditions.

Previously known methods using thermocouples or pyrometers are inaccurate. Others require an accurate knowledge of the optical properties of the material used.

According to the method, the material is illuminated with a constant illuminating energy, its reflectivity is measured as a function of time and the position of an extreme value of the Fabry-Perot oscillations of the respective layer is determined from this. From the position, the growth rate of the layer is determined. The process temperature and/or the composition of the layers is determined from previously ascertained comparison values.

The method can be employed in situ for the organometallic vapor phase epitaxy (MOVPE), molecular beam epitaxy (MBE) or similar methods and enables the sample temperature to be determined under standard growth conditions.